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ABSTRACT

Computer-Assisted Language Learning (CALL) is introduced and some of its benefits for foreign language teaching are discussed. The focus of the discussion is on fundamental principles and advantages of the CALL methodology, along with types of learner's role. Advantages of CALL are identified, including the versatility of presentation of material, computer analysis of student performance, instant feedback, and the entertainment or novelty factor. Two sample programs for teaching English as a foreign language are also described: "Rambler" (or "Words Words Words") and "The University Survival Game." Alternatives available to language teachers who want to integrate CALL into their own teaching are discussed. Contains 31 references. (LB)

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INTEGRATING CALL INTO FOREIGN-LANGUAGE TEACHING

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The paper introduces CALL and discusses some of the benefits it holds for foreign-language teaching in terms of fundamental principles and advantages of CALL methodology. It also describes two sample EFL programs and discusses the alternatives available to teachers who wish to integrate CALL into their teaching.

1. Introduction and aim

> **Customer 1**: Hi. My friend here is interested in looking at some word processors.
> **Salesman**: Hard disk or flopsies? What are your storage capacity requirements? What kind of retrieval speed? How many bytes per second data transfer?
> **Customer 2**: I knew it. He doesn't speak English. Let's go.
> **Customer 1**: Hold on, Rev, don't panic. I've got a phrase book... "Excuse me, Sir. Do you have any user-friendly sales reps?"
> **Salesman**: You mean, consumer-compatible live-ware? No, he's off today.

Like Customer 2 in Garry Trudeau's comic strip Doonesbury (reprinted in the foreword to Jones & Fortescue 1987), most people who cannot understand the jargon used by computer scientists or computer experts, often feel that they cannot understand or use computers either. This is especially true for foreign-language teachers, who fortunately could not be more wrong.[1]

The aim of this paper is to introduce CALL (Computer-Assisted Language Learning) and to discuss some of the benefits it holds for foreign-language teaching in terms of fundamental principles and advantages of CALL methodology, the types of programs available and learners' roles. The paper also describes two sample programs for the teaching of EFL (English as a Foreign Language), and discusses the alternatives available to language teachers who wish to integrate CALL into their teaching.

2. Terminology and types of programs

Letter combinations attempting to clarify the relationship between the computer and its user, form one field of computer jargon. Thus in the jungle of acronyms we find the neutral CBE (Computer-Based Education), which

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encompasses almost everything that can be done in order to learn through computers, the more specific CAI (Computer-Assisted Instruction) and CAL (Computer-Assisted Learning), which by the letters I and L, respectively, stress the computer as an instructor or the user as a learner, and, finally, the relatively well-defined CALL and even CAFLI (Computer-Assisted Foreign-Language Instruction).[2]

The large number of existing systems for classifying computer programs also adds to the confusion often felt by the computer-ignorant or uninitiated language teacher. Wyatt (1987), for example, lists and describes fourteen different program categories, most of which are related to those presented in Davies (1982) and in Higgins and Johns (1984). Wyatt´s software categories, i.e. (1) tutorial; (2) drill and practice; (3) game; (4) holistic practice; (5) modelling; (6) discovery; (7) simulation; (8) adventure reading; (9) annotation; (10) idea processor; (11) word processor; (12) on-line thesaurus; (13) spelling checker; and (14) textual analysis; have been reduced to four in Pusack and Otto´s approach to CALL (1984), viz. (1) practice and diagnosis; (2) tutorial; (3) simulation and problem solving; and (4) utility.

3. Fundamental principles of CALL methodology

From the language teacher´s point of view, a much more important classification of computer programs concerns the interactional relationship between the computer and the learner. Wyatt (1984) distinguishes three such main categories, i.e. instructional, collaborative, or facilitative programs.

In instructional programs, the learners are responders rather than initiators. The computor instructs the learners who, by following predetermined learning paths, learn from the computer in compliance with the high- or low-level learning objectives set by the programmer (or the teacher). In collaborative programs, on the other hand, the learners are primarily initiators and take more responsibility for their learning. Such programs typically include elements of discovery learning, making the learners learn with the computer rather than from it. The learning objectives of these programs are mostly specified in high-level terms. In facilitative programs, finally, the learners are entirely responsible for their learning and use the computer mainly as a working tool. Learning objectives are by definition not specified or embodied in programs of this kind (Wyatt 1984 , 1987).

What, then, are the advantages of CALL?

Firstly, unlike the conventional textbook, for example, the computer exercises complete control over the presentation of material both as far as order and pace are concerned. Depending on the objectives of the program in question, it is possible for the programmer to use selected details to add up to a whole, combining, if desired, graphic information with text. Colour variation and movement effects can be exploited for further emphasis of specific learning points and, if necessary, the program can also include a built-in time delay chosen by the learner or selected for him (either by the program itself according to his performance, or by the teacher) (cf. Cook 1985).

Secondly, unlike any other teaching aid, the computer analyses what the learner does and, what is more important, is able to provide instant feedback and/or take appropriate action. With the computer there is no need for the learner to look up answers at the back of a book or to wait for the teacher to check his answers (cf. Davies & Higgins 1985). Furthermore, the feedback from the computer is meaningful to the learner, it is personal and, especially in self-access learning situations, it is also private (cf. Curtin & Shinall 1987).

Thirdly, unlike the teacher who can normally spend only a few minutes with each learner during a lesson, the computer is at the learner´s disposal for the whole lesson (cf. Davies & Higgins 1985). In addition, it is patient and it is creative insofar as it can vary the exercises in a variety of ways and interact with each learner according to the responses it receives, i.e. provide individualised instruction (cf. Garrett 1987).

Fourthly, the novelty and (at least to some extent) the entertainment provided by the computer, can be exploited to motivate learners to learn what the teacher wants them to learn (cf. Curtin & Shinall 1987), and at the same time make them feel that their studies are meaningful, relevant, and rewarding (cf. Fox 1985). This is especially important in classroom situations where the language taught has the status of a foreign (as opposed to second) language (e.g. the English taught in Finnish schools) and where the individual interests of the learners, rather than communicative needs as such, often determine what they actually learn (cf. Palmberg 1988a).

4. Two sample programs

The present section describes the designs of two CALL programs, both of which were programmed for EFL teaching purposes by members of the Language Materials Development Project at the Department of Teacher Education at Åbo Akademi.

4. 1. Rambler

The first program is entitled Rambler (or Words Words Words) (Palmberg & Palmqvist 1988). It is a vocabulary program based on the principle of learning by discovery. The learner starts by selecting one of the seven keywords included in the program and then tries to produce as many English words as possible using letters from the selected word. All accepted words will be displayed on the screen, whereas unaccepted words will be commented upon. While working with the program, the learner has ample opportunity of trying out which letter combinations are in fact English words and which are not. Since he does not know the number of accepted words for each keyword, he will find it challenging and motivating to try out more and more possibilities. If stuck, he may decide to use the clues offered in the program. He may also consult the built-in dictionary at any time to check the meanings of the words that he has already found.

When the learner presses the EXIT-key, all accepted words are displayed on the screen. The computer now invites him to consult the dictionary to check the meanings of any unfamiliar words. When he presses the EXIT-key again, he is prompted to choose between an easy and a difficult version of a test. He is then given a list of 10-15 synonyms, definitions or explanations selected randomly from among the keyword vocabulary with which he is working, and is asked to provide the appropriate words. In the easy version, all accepted words are displayed on the screen, and the test phase therefore strengthens the learner's receptive vocabulary. In the difficult version, on the other hand, the accepted words are no longer displayed on the screen, and the test phase in this case requires the learner to activate his productive vocabulary.

Owing to the way in which the program is designed, the activity is both meaningful and stimulating to all learners, irrespective of age group or level of language proficiency. The program is very instructive and the vocabulary it contains covers a wide selection of topics. Since the total size of the program

vocabulary is relatively large,[3] learners are easily lured into making new journeys of discovery into the world of English vocabulary, i.e. into active learning.

4. 2. The University Survival Game

The second program, The University Survival Game (Palmberg 1988b), is intended primarily for learners at upper secondary school level. It is a simulation program, i.e. a program which allows the learner "to carry out simulated experiments which could have dangerous consequences or which would take too long to conduct in real life" (Davies & Higgins 1984:63). In The University Survival Game, the scenario (as indicated in the program title) is the university world and the task of the learner is to try to survive (economically and mentally) until he has completed the studies required to secure him an academic degree.

When the game starts, the learner has a study loan of 10.000 Finnish Marks at his disposal. Following the principles set out in the Market Model (cf. Minken, Stenseth & Vavik 1987), the program allows the learner at any time to engage in a range of activities, all of which involve desicions based on data from realistic situations (cf. Higgins & Johns 1984). The activities include full-time study, work, or leisure (or any combination of the three), taking relaxing holidays, gambling for money, finding out facts about the game, etc.

Time and money are the two most important variables. Successful studies are rewarded with scholarships, whereas slow studies lead to premature repayments of the study loan. The learner must therefore plan his economical situation carefully. He must take into account not only his monthly rent and food bills and the annual loan interest and repayments, but also the facts that salaries are progressively taxed above a certain annual income bracket and that gambling and applying for new bank loans add to his stress index. The program also includes regular academic assessment (examinations) and as in real life, the learner may meet with a number of unpredictable eventualities, such as car accidents, love affairs and muggings.

All events in the program are conducted in English. In this way, the learner is forced to activate the vocabulary used in everyday life and at the same time increase his receptive vocabulary knowledge in the areas of academic life and student financial support. To facilitate learning, most of the educational

vocabulary is repeated regulary throughout the program and there are additional test sessions that require the learner to produce specific vocabulary.

5. Some implications for teaching

As stated in section 3, CALL offers several advantages both to the teacher and to the learner. It can, for example, add completely new types of exercises to those traditionally used in the classroom and can relieve pressure on classroom time by providing self-access opportunities. Some of the most important benefits to the learner include the facts that it generates interest, demands active participation, permits self-regulated study pace and can promote learning through discovery.

Yet the perception that language teachers commonly have of CALL is often wrong, or at least misleading, in several respects. It is often thought, for example, that the computer can substitute the teacher, that it can be made omniscient, and that its major role is that of a "quizmaster", whose emphasis is on formal correctness (Fox 1985). It is also generally believed that there exists one single "computer method" and that a CALL lesson is determined solely by the interaction between the learner and the computer (Jones and Fortescue 1987).

By contrast in fact, the computer, like the textbook and the overhead projector, can never substitute the teacher. Nor can it be made omniscient, despite attempts by computer scientists to show that it can carry on meaningful conversations with humans.[4] It is also clear that there exists no such thing as a "computer method", in the same way as there exists no single "overhead-projector method" or "textbook method". The computer should be viewed as an ordinary teaching aid that can be used in a variety of ways and for a variety of purposes, both in the classroom and on a self-access basis. In fact CALL is what Fox refers to as "methodologically neutral" (Fox 1985:96), and all methodological questions must therefore be addressed by the teacher, including the question as to whether to use the computer at all for the teaching point being covered.[5]

How, then, can the computer be linked in with ordinary classroom work?

For a typical CALL lesson, the teacher first picks the program he wants to use. With the selected program, whether it be of the quizmaster type referred to

above, a word-processing or a database program, a program which uses the computer as a kind of discovery device, or a program whose purpose is to provide the learners with something to talk about, it remains the teacher who defines the boundaries and aims of the class work. Depending on the type of program, the computer then presents the task, informs, checks learner input and provides feedback, whereas the learner exercises control within the boundaries set by the program (cf. Jones and Fortescue 1987).

Taking The University Survival Game as an example, the teacher must first decide when to use the program, possible times during a course being in connection with texts on the British education system, life on a university campus, or even budgeting. He then explains the context of the program to the learners and introduces the appropriate vocabulary. Next the learners are divided into groups of two or three for each computer terminal and since the program demands constant decision-making, they are repeatedly forced to agree among themselves as to what actions to take and what alternatives to choose. Owing to the fact that the computer can perform even very complicated calculations in much less than a second, it is possible for the learners to discover the consequences of each decision immediately it has been taken and they have entered their choice. They may then analyse the new situation and decide upon further, appropriate action. While the learners are working, the teacher is free to move from group to group supervising and providing help whenever needed.

The program thus provides the learners with ample opportunity to practise both reading comprehension and many other language functions, such as arguing, disagreeing, suggesting alternatives, persuading and defending. At the same time it forces them to revise and activate the program vocabulary and also provides them with new information about the topic in question (cf. Curtin & Shinall 1987). The teacher can activate the learners further by giving them individual assignments (ready-made worksheets are very useful for this purpose), such as taking notes of which actions lead to which results.

When the learners have finished working on the computer, the teacher may introduce a follow-up task. Depending on the teaching aims, this may involve a variety of activities. The teacher may, for example, invite each group to prepare for the next lesson a brief written report based on their worksheet notes. Alternatively, if he wants to concentrate on oral skills, he may either ask the learners to prepare a report to be presented orally in class, or he may

practise the program vocabulary and language functions through role-playing activities or one-to-one interviews. He may also wish to focus on group dynamics by attending to various "life" skills, such as techniques for reaching consensus, voting systems, or brainstorming (Jordan 1988).

6. Conclusions

What, then, are the alternatives open to the language teacher wishing to adopt CALL and learn more about computers?

There are, in principle, two major alternatives. The first alternative is not to learn to program, but to rely on existing software. This requires that the teacher acquaint himself with which programs are available on the market[6] and also be capable of selecting programs that are relevant for his particular teaching needs and as far as possible, suitable for a variety of classroom situations.[7] It would, for example, be a major mistake if he were to evaluate CALL by one of its trivial realisations encountered by chance at a computer exhibition (Decoo 1984). Examples commonly displayed at such forums are often the dull and meaningless drill-type exercises where learners are expected to choose between "a", "an", and "the", only to receive feedback in forms such as "Good. Go on to exercise 15." or "That was wrong. Please repeat exercise 12." (Fox 1985) and which could easily (and also should) be substituted with pen-and-pencil exercises.

The second alternative is to learn how to program, which for the teacher could mean a number of different things. He may, for example, decide to acquire enough programming skills to be able to adapt and modify existing software to suit his personal teaching situation. He may indeed decide to learn a programming language well enough to write programs of his own, some of which may even reach semi-professional or professional programming standards (cf. Skehan 1985). He may also decide to learn an authoring language, i.e. a program which offers the programmer a set of commands that are less complex than those available in ordinary programming languages (cf. Jones & Fortescue 1987).[8]

NOTES

1 See Davies and Higgins (1985) for a helpful glossary of "indispensable jargon of computing and CALL".
2 See Pusack (1987) for further examples.

3 The letters in the keyword ramble, for example, can form 46 different English words. In addition to the total number of accepted words for the seven keywords, the program vocabulary is further enlarged by the provision of synonyms, definitions or explanations in English for all accepted words.

4 One of the best-known programs in this field is ELIZA, which was developed in1966 by Joseph Weizenbaum. See e.g. Higgins and Johns (1984) or Underwood (1987) for a description. For a description of what has become known as ELIZA programs, see Cook (1988).

5 See e.g. Palmberg (1987) for a recent bibliography on the use of micro-computers in foreign- language teaching, and Jones and Fortescue (1987) for an excellent methodological handbook on CALL.

6 See e.g. Davies and Higgins (1985) and Jones and Fortescue (1987) for two comprehensive lists of software available for foreign-language teaching (EFL in particular). See Scarbrough (1988) for a current review of EFL software.

7 See e.g. Hubbard (1987) for checklists developed specifically for the evaluation of CALL software. See also Jamieson and Chapelle (1988) for a discussion of learner characteristics that may be important when examining computer software.

8 See Higgins (1985) for an analysis of the different stages involved in writing a computer program and, for excellent programming guidance, Kenning and Kenning (1983) and Davies (1985).

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